

August 11, 2005

VIA ECFS

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

**Re: Petition for Partial Reconsideration of the Satellite Industry Association,
Report and Order and Memorandum Opinion and Order, ET Docket Nos.
04-151, 02-380, 98-237 and WT Docket No. 05-96**

Dear Ms. Dortch:

This letter is submitted on behalf of Fox Broadcasting Company (“Fox Broadcasting”) and Fox Cable Networks (“Fox Cable” and, together with Fox Broadcasting, “Fox Networks”) and Home Box Office, Inc. (“HBO”) in support of the Petition for Partial Reconsideration of the Satellite Industry Association (“SIA Petition”) filed in response to the Commission’s *Report and Order and Memorandum Opinion and Order* (“*Order*”)^{1/} in the above-referenced proceedings. The *Order* adopted rules permitting wireless Internet service providers (“WISP”) and other terrestrial users to transmit in the 3650-3700 MHz (“extended C-band”) frequency band. As the SIA Petition points out, the rules adopted in the *Order* will expose conventional C-band (3700-4200 MHz) satellite earth station receivers to serious risks of harmful interference.^{2/}

Because their programming services are distributed domestically over C-band satellite systems, HBO and the Fox Networks have a well-defined interest in the outcome of this proceeding. Interference to reception by these satellite systems caused by WISPs and other terrestrial operators transmitting in the extended C-band frequencies could degrade the quality of services HBO and Fox Networks provide to their customers.

HBO is a leading provider of premium pay television services in the United States, distributing multiple feeds of its HBO and Cinemax services through multichannel video program distributors (“MVPDs”) to approximately 39 million subscribers. HBO transmits approximately 30 feeds of its programming services using eight C-band satellite transponders. These feeds are distributed, on a twenty-four hour per day basis to approximately 10,000 C-band receive sites. Fox Broadcasting, currently the nation's leading broadcast television network,

^{1/} Wireless Operations in the 3650-3700 MHz Band, *Report and Order and Memorandum Opinion and Order*, 20 FCC Rcd 6502 (2005) (“*Order*”).

^{2/} Petition for Reconsideration of the Satellite Industry Association, ET Docket Nos. 04-151, 02-380, 98-237 and WT Docket No. 05-96, at 7-10 (filed June 10, 2005) (“SIA Petition”).

simultaneously transmits up to 16 HD and 16 SD feeds to 184 broadcast TV stations around the country. These digital transmissions began in 2002. With respect to cable program services, Fox Cable utilizes 11 C-band transponders to transmit program services (including 62 digital channels, six of which are HD) such as Fox News Channel, fX, 14 regional sports networks, Speed, Fuel, Fox Sports en Espanol, World, and three college sports channels. These cable networks reach approximately 4,000 cable television headends and 69 million subscribers.

Beginning in 1992 and 1997, HBO and Fox Networks, respectively, began transmitting certain of their feeds in a digital format. Although the digital feeds are more spectrum efficient, they use modulation schemes which are not as robust as analog transmissions and so are more susceptible to interference. For example, Fox Broadcasting uses 8PSK (8 Phase Shift Keying) modulation. All Fox Broadcasting downlink sites have been engineered to provide 3 dB of margin, above digital threshold. As an example of the efficiency benefits from using 8PSK, within a few short weeks Fox Broadcasting will increase the number of digital feeds from three HD per transponder to four without the requirement of increasing the number of digital satellite transponders from the current four transponders.

As pointed out by SIA, unless the out-of-band (“OOB”) emissions limits adopted in the *Order* are tightened to the levels originally contemplated in the *NPRM* in this proceeding, FSS earth stations will frequently be exposed to OOB interference levels that will undermine the ability to provide reliable services for consumers.^{3/} This risk is only likely to increase as programmers transition to more highly spectrum efficient modulation techniques (*e.g.*, 8PSK and QAM) that, as noted above, operate on much tighter margins than traditional FSS signals using older compression and modulation standards.^{4/} This trend towards more efficient modulation techniques is already being seen with the growing popularity of bandwidth-intensive applications such as HDTV. The Commission’s failure to properly account for OOB emissions when adopting the *Order* makes reconsideration necessary. Moreover, the Commission’s reservation of discretion to require greater attenuation than specified in the rules if interference develops does not provide reassurance to FSS earth station operations such as the ones relied on by Fox Networks and HBO. Even if the Commission retains discretion to address interference

^{3/} See *Order* 20 FCC Rcd at 6529-30 ¶¶ 74-75 (adopting a limit of $43+10 \log(p)$ dB below transmit power minimum attenuation for WISP fixed and mobile operations in the extended C-band). This OOB emission limit is nearly 30 dB higher than the limit initially envisioned by the Commission. See *Wireless Operations in the 3650-3700 MHz Band, Notice of Proposed Rulemaking*, 19 FCC Rcd 7545, 7571 ¶ 85 (2004) (“*NPRM*”) (proposing that licensed devices in the extended C-band employ the same measures to protect FSS operations as those proposed for unlicensed devices, which have an OOB emission limit of -71.25 dBW/MHz). The higher limit exacerbates the interference threat posed to conventional C-band operations by these additional OOB emissions. See SIA Petition at 8-9, Attachments A and B.

^{4/} SIA Petition at 6.

problems, such discretion is likely to be applied only after substantial disruption of C-band satellite services has been caused by the OOB transmissions of WISP operations.^{5/}

The Commission also failed to address SIA's technical showings that the new rules could lead to the saturation of the low-noise blocker converter ("LNB") of a C-band earth station, which would distort the receive signal in the form of phase noise and undermine the high order modulation schemes used for HDTV distribution and other bandwidth-intensive operations.^{6/} Unless the Commission addresses this issue by requiring lower permitted EIRP emissions in the top 25 MHz of the band, FSS earth station operators will be required to retrofit their earth stations with band pass filters. The technical challenge posed in designing such a filter suggests that it may be practically impossible to design a filter capable of attenuating the undesired signal without compromising the intended receive signal. On reconsideration, the Commission should take the opportunity to correctly address this issue and adopt lower power limits for the upper 25 MHz of the band.

In conclusion, because of the considerable risk that interference from WISP transmissions to C-band satellite reception will occur based on the rules adopted in the *Order*, the Commission should reconsider those portions of the *Order* that do not adequately address OOB limits and LNB saturation. Revising the rules as suggested by SIA would provide some assurance to U.S. network programmers, almost all of which use C-band satellites, that their services will not be disrupted by harmful interference.

Please contact the undersigned if you have any questions.

^{5/} See *Order*, 20 FCC Rcd at 6545 (new rule section 47 C.F.R. § 90.1323(b)). The Commission did not provide any standards for exercising this discretion or even a discussion of when it might apply the greater attenuation in the *Order*.

^{6/} SIA Petition at 13-14.

Ms. Marlene H. Dortch
August 11, 2005
Page 4

Sincerely,

/s/

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/s/

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cc: David Cavossa, Satellite Industry Association (via e-mail)